

REMARKS

Claims 2-98 are pending in the application. Claims 2-5, 6-22, 31, 35-41, 43, 45-53, 55, 56, 60, 61-64, 67-69, 72, 73, 75-87, 90-94 and 98 are rejected. Claims 95-97 are allowed. Applicants thank the Examiner for the notification that Claims 62-64, 67-69, 72, 73, 75-87, and 90-94 would be allowable if amended. Applicants also thank the Examiner for the notification that Claims 32-34, 42, and 57-59 would be allowable if rewritten in independent form. Claims 23-30, 44, 54, 65, 66, 70, 71, 74, 88, and 89 were previously withdrawn and are canceled without prejudice by this Amendment. Claims 32, 42, 57, 62, and 95 are amended herein. Applicants respectfully traverse the rejections.

In the Specification

The Action objects to the disclosure and more particularly to the status of the applications mentioned on pages 2 and 16 of the Specification. Appropriate amendments to the Specification are provided herein, thereby addressing these objections and applicants request their withdrawal.

35 U.S.C. § 112, Second Paragraph Rejections

Claims 62-64, 67-69, 72, 73, 75-87 and 90-94 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claims the subject matter regarded as the invention. In particular, the Action indicates that a lack of definition of M^2 renders Claim 62 indefinite as well as those claims depending therefrom. Applicants respectfully traverse this rejection.

Claim 62 is amended herein to include the recitations “wherein M^2 is one of M^1 and B_i ” as originally recited in Claim 62. Claim 62 is not indefinite based upon this amendment and is allowable. Claims 63-64, 67-69, 72, 73, 75-87 and 90-94 depend from Claim 62 and are allowable over the 35 U.S.C. § 112, second paragraph rejection.

35 U.S.C. § 102(e) Anticipation Rejections

Claims 2-4, 6-22, 31, 36-39, 41, 43, 45-53, 55, 56, 61, and 98 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Thackeray et al. (U.S. Pat. No. 6,677,082). Applicants respectfully traverse this rejection.

The Action alleges that “Thackeray et al. disclose a cell with a two-phase cathode material.” *See, Action* at p. 3. This, however, is not the case. Thackeray et al. proposes a **single-phase** cathode material in contrast to the two phase materials recited by claims of the present application. Thackeray et al. proposes lithium-metal-oxide electrode compositions having “a general formula $x\text{LiMO}_2 \cdot (1-x)\text{Li}_2\text{M}'\text{O}_3$ alternatively $\text{Li}_{2-x}\text{M}_x\text{M}'_{1-x}\text{O}_{3-x}$ in which $0 < x < 1 \dots$ ” *See, Thackeray et al.* at col. 1, lines 20-24 and col. 2, lines 65-67. In addition, “the $x\text{LiMO}_2 \cdot (1-x)\text{Li}_2\text{M}'\text{O}_3$ structure can be regarded essentially as a compound with a common oxygen array for both the LiMO_2 and Li_2MnO_3 components, but in which the cation distribution can vary such that domains of the two components exist side by side.” *See, Id.* at col. 3, lines 25-30 (emphasis added). The two phases alleged by the Action, LiMO_2 and $\text{Li}_2\text{M}'\text{O}_3$, are defined in Thackeray et al. as components of a single compound sharing a single oxygen array. Furthermore, the single-phase structure is exemplified by Thackeray et al.’s Examples. Examples 1-3 each describe the formation of compounds according to Thackeray et al., which compounds are “essentially single-phase product[s] with a layered type structure.” *See, Thackeray et al.* at col. 5, line 49 – col. 6, line 9. Thus, the compounds of Thackeray et al. are not two-phase compounds, but rather single-phase compounds.

Claims 2, 37, and 98 are independent claims. Each of independent Claims 2, 37, and 98 recite positive electrode active materials that include at least one compound of the formula $\text{LiM}^1_{x-y}\{\text{A}\}_y\text{O}_z$ and at least one lithium metal oxide of the formula $\text{Li}_2\text{M}^2\text{O}_3$. Thus, the claimed positive electrode active materials include at least two different compounds. The recited compounds and lithium metal oxides are not a single-phase compound as proposed by Thackeray et al.

Under 35 U.S.C. § 102, “a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”

M.P.E.P. § 2131 (quoting *Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987)). Thackeray et al. proposes the formation of single-phase compounds for use as positive electrode active materials. Independent Claims 2, 37, and 98 of the present application, however, recite positive electrode active materials having at least two compounds: at least one compound of the formula $\text{LiM}^1_{x-y}\{\text{A}\}_y\text{O}_z$ and at least one lithium metal oxide of the formula $\text{Li}_2\text{M}^2\text{O}_3$. Thackeray et al. does not propose a positive electrode active material having more than the single-phase compound $x\text{LiMO}_2 \cdot (1-x)\text{Li}_2\text{M}'\text{O}_3$. Thackeray et al.'s failure to expressly or inherently describe a positive electrode active material as recited in Claims 2, 37, and 98 precludes an anticipation rejection of those claims. *See, Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

Claims 3-4, 6-22, 31, and 36 depend from independent Claim 2. Claims 38, 39, 41, 43, 45-53, 55, 56, and 61 depend from independent Claim 37. As dependent claims of non-anticipated independent claims, Claims 3-4, 6-22, 31, 36, 38, 39, 41, 43, 45-53, 55, 56, and 61 are allowable.

35 U.S.C. § 103(a) Obviousness Rejections

Claims 5 and 40 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious in light of Thackeray et al. Applicants respectfully traverse this rejection.

Claim 5 depends from Claim 2 and Claim 40 depends from Claim 37. Claims 2 and 37 are not obvious. In addition, Claims 2 and 37 are not anticipated for at least the reasons previously recited. As dependent claims of non-obvious independent claims, Claims 5 and 40 are also non-obvious. *See, In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988)(stating that if an independent claim is nonobvious under 35 U.S.C. § 103 then any claim depending therefrom is nonobvious); *see also*, M.P.E.P. § 2143.03.

In addition, each of Claims 5 and 40 recite positive electrode active materials including a compound of the formula $\text{LiM}^1_{x-y}\{\text{A}\}_y\text{O}_z$ and a lithium metal oxide of the formula $\text{Li}_2\text{M}^2\text{O}_3$. A *prima facie* obviousness rejection requires that “the prior art reference (or references when combined) must teach or suggest all the claim limitations.” *See*, M.P.E.P. §2142, *citing In re*

Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Thackeray et al. fails to describe more than a single-phase compound that may be used as a positive electrode active material. The failure of Thackeray et al. to teach or suggest a positive electrode active material having the compound and lithium metal oxide recited in Claims 5 and 40 precludes a *prima facie* obviousness rejection. Claims 5 and 40 are therefore non-obvious and allowable.

Claims 35 and 60 also stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious in light of Thackeray et al. in combination with Saidi et al. (U.S. Pat. No. 6,103,419). Applicants respectfully traverse this rejection.

Claim 35 depends from Claim 2 and Claim 60 depends from Claim 37. Claims 2 and 37 are not obvious. In addition, Claims 2 and 37 are not anticipated for at least the reasons previously recited. As dependent claims of non-obvious independent claims, Claims 35 and 60 are also non-obvious. *See, In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). Furthermore, the combination with Saidi et al. does not make obvious Claims 2 and 37 from which Claims 35 and 60 depend.

Claim Objections ~ Claims 32-34, 42, and 57-59

Claims 32-34 are objected to as being dependent upon a rejected base claim. The Action, however, indicates that Claims 32-34 would be allowable if rewritten in an independent form. Applicants thank the Examiner for this notification.

Claim 32 is amended herein to an independent form and includes the recitations of Claims 31 and 2 from which it depends. As an independent claim, Claim 32 is believed to be allowable. Claims 33 and 34 depend from amended independent Claim 32. As dependent claims of an allowable independent claim, Claims 33 and 34 are allowable.

Claims 42 and 57-59 are objected to as being dependent upon a rejected base claim. The Action indicates that Claims 42 and 57-59 would be allowable if rewritten in an independent form. Applicants thank the Examiner for this notification.

Claim 42 is amended herein to an independent form including the recitations of Claim 37 from which it originally depended. Similarly, Claim 57 is amended herein to an independent

In re: Gao et al.
Docket No.: 208-6164
Serial No.: 10/040,047
Page 20 of 20

form including the recitations of Claim 37 from which it depends. As independent claims, Claims 42 and 57 are now allowable. Claims 58 and 59 depend from Claim 57. As dependent claims of an allowable independent claim, Claims 58 and 59 are also allowable.

CONCLUSION

The concerns of the Examiner addressed in full, Applicants respectfully request withdrawal of the outstanding rejections and the issuance of a Notice of Allowance forthwith. No fee is believed due. However, the Commissioner is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-0220. The Examiner is encouraged to direct any questions regarding the foregoing to the undersigned, who may be reached at (919) 854-1400.

Respectfully submitted,

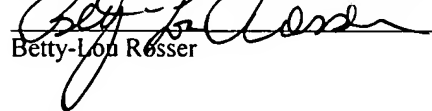


Devin R. Jensen
Registration No. 44,805

Customer Number 20792
Myers Bigel Sibley & Sajovec, P.A.
P. O. Box 37428
Raleigh, North Carolina 27627
Telephone: (919) 854-1400
Facsimile: (919) 854-1401

CERTIFICATE OF EXPRESS MAILING

"Express Mail" mailing label number: EV472540553US Date of Deposit: June 16, 2004
I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.


Betty-Lou Rösser